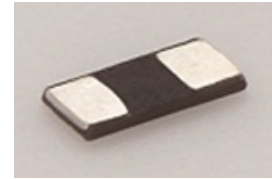


## Low Resistance Value Chip Resistors(Current Sensing Resistors)

Type: **ERJM03**

Discontinued



### ■ Features

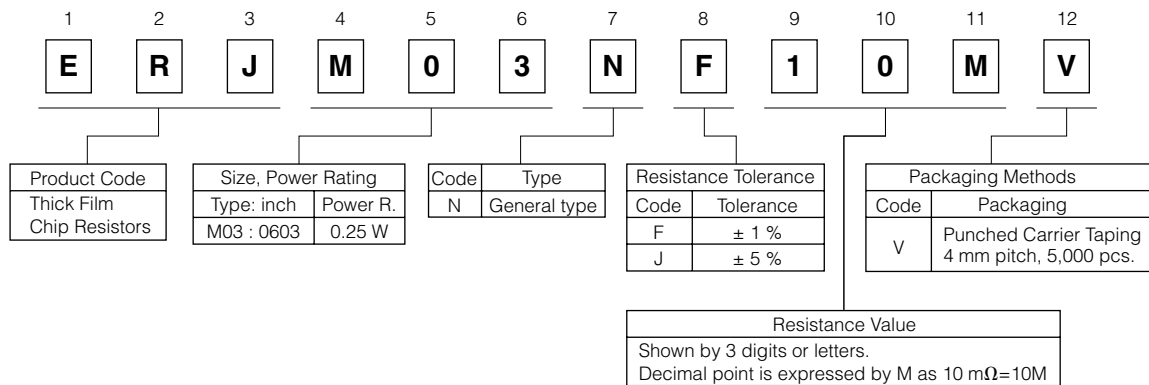
- Low resistance values and high precision (10 mΩ)
- Stable resistance not influenced by measurement position
- High heat emission
- Low profile, strong body
- Inductance less than 1.0 nH for the metal plate structure
- RoHS compliant

### ■ Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

Please see Data Files

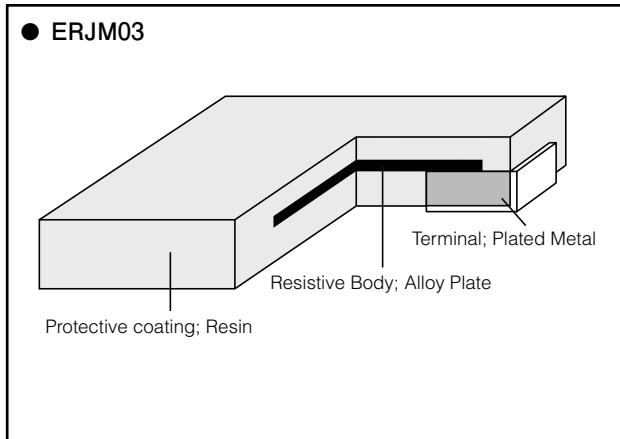
### ■ Explanation of Part Numbers

#### ● ERJM03



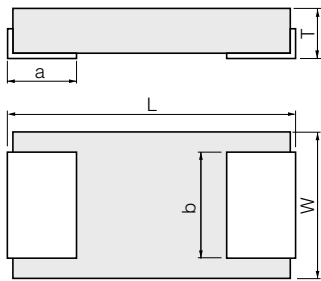
### Construction

#### ERJM03



### Dimensions in mm (not to scale)

#### ERJM03



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	T	a	b	
ERJM03N (0603)	1.60 <sup>+0.15</sup>	0.8 <sup>+0.15</sup>	0.35 <sup>+0.10</sup>	0.45 <sup>+0.15</sup>	0.65 <sup>+0.15</sup>	1.7

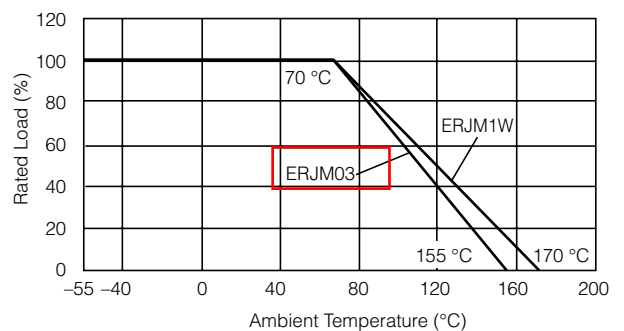


### Ratings

Type (inch size)	Power Rating at 70 °C (W)	Standard Resistance (mΩ)	Resistance Tolerance (%)	T.C.R. (×10 <sup>-6</sup> /°C)	Category Temperature Range (°C)	Circuit board of use
ERJM03N (0603)	0.25	10	F: ±1, J: ±5	±100	-55 to +155	-

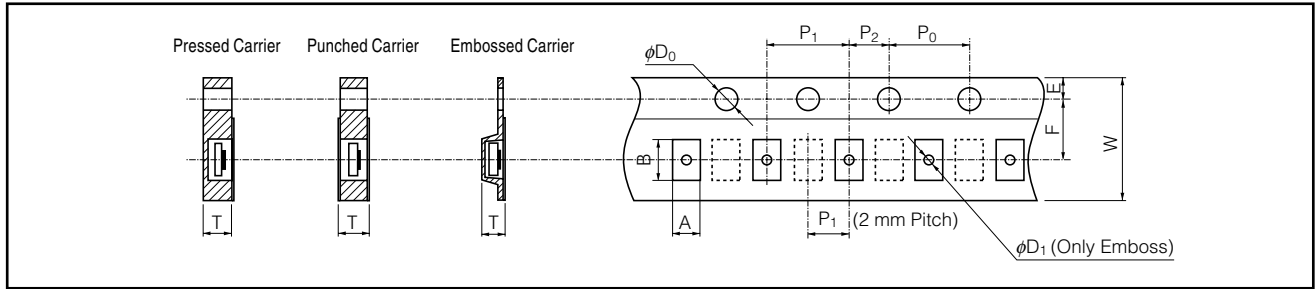
### Power Derating Curve

For resistors operated in ambient temperatures above 70 °C, power rating shall be derated in accordance with the figure on the right.



### Carrier Tape

(Unit : mm)



### Pressed Carrier Taping (2 mm Pitch)

#### ● Rectangular Type

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T
ERJXGN	0402(01005)	0.24 <sup>±0.03</sup>	0.45 <sup>±0.03</sup>	8.00 <sup>±0.20</sup>	3.50 <sup>±0.05</sup>	1.75 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	0.31 <sup>±0.05</sup>
ERJ1GN ERJ1R□ ERJU01 ERA1A	0603 (0201)	0.38 <sup>±0.05</sup>	0.68 <sup>±0.05</sup>								0.42 <sup>±0.05</sup>
ERJ2BW	1005(0402)	0.67 <sup>±0.10</sup>	1.17 <sup>±0.10</sup>								0.61 <sup>±0.05</sup>

### Punched Carrier Taping (2 mm Pitch)

#### ● Rectangular Type

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T
ERJ2□ ERJS02 ERJU02 ERA2A	1005 (0402)	0.67 <sup>±0.05</sup>	1.17 <sup>±0.05</sup>	8.00 <sup>±0.20</sup>	3.50 <sup>±0.05</sup>	1.75 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	0.52 <sup>±0.05</sup>

### Chip Resistor Array / Anti-Sulfurated Chip Resistor Array / Chip Attenuator

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T
EXB14V EXB14AT	0806 (0302)	0.70 <sup>+0.10</sup> <sub>-0.05</sub>	0.95 <sup>+0.05</sup> <sub>-0.10</sub>	8.00 <sup>±0.20</sup>	3.50 <sup>±0.05</sup>	1.75 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	0.52 <sup>±0.05</sup>
EXB18V	1406(0502)		1.60 <sup>±0.10</sup>								
EXB24V EXBU24 EXB24AT	1010 (0404)	1.20 <sup>±0.10</sup>	1.20 <sup>±0.10</sup>								
EXB28V EXBU28 EXBN8V	2010 (0804)		2.20 <sup>±0.10</sup>								

### Punched Carrier Taping (4 mm Pitch)

#### ● Rectangular Type

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T
ERJ3□ ERJ3BW ERJ□□3 ERA3A	1608 (0603)	1.10 <sup>±0.10</sup>	1.90 <sup>±0.10</sup>	8.00 <sup>±0.20</sup>	3.50 <sup>±0.05</sup>	1.75 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	0.70 <sup>±0.05</sup>
ERJ6□ ERJ□06 ERJS6□ ERA6A	2012 (0805)	1.65 <sup>±0.15</sup>	2.50 <sup>±0.20</sup>								0.84 <sup>±0.05</sup>
ERJB3	1220(0508)	1.55 <sup>±0.15</sup>	2.30 <sup>±0.20</sup>								
ERJ6BW ERJP6W	2012(0805)										
ERJ8□ ERJ8□W ERJ□08 ERA8A	3216 (1206)	2.00 <sup>±0.15</sup>	3.60 <sup>±0.20</sup>								
ERJB2	1632(0612)										

● Chip Resistor Array / Metal Film Chip Resistor Array / Anti-Sulfurated Chip Resistor Array / Chip Resistor Networks (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T	
EXB34V EXBU34	1616(0606)	1.95 <sup>±0.15</sup>	1.95 <sup>±0.20</sup>	8.00 <sup>±0.20</sup>	3.50 <sup>±0.05</sup>	1.75 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	0.70 <sup>±0.05</sup>	
EXB38V ERA38V EXBU38	3216(1206)		3.60 <sup>±0.20</sup>									
EXB2HV EXBU2H	3816(1506)		4.10 <sup>±0.15</sup>									
EXBV4V	1616(0606)		1.95 <sup>±0.20</sup>									
EXBV8V	3216(1206)		3.60 <sup>±0.20</sup>									
EXBD	3216(1206)		2.00 <sup>±0.20</sup>									3.60 <sup>±0.20</sup>
EXBQ	3816(1506)	1.90 <sup>±0.20</sup>	4.10 <sup>±0.20</sup>								0.84 <sup>±0.05</sup>	
												0.84 <sup>±0.10</sup>
												0.64 <sup>±0.05</sup>

■ Embossed Carrier Taping (1 mm Pitch)

● Rectangular Type (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T
ERJXGN	0402(01005)	0.25 <sup>±0.05</sup>	0.45 <sup>±0.05</sup>	4.00 <sup>±0.20</sup>	1.80 <sup>±0.05</sup>	0.90 <sup>±0.10</sup>	1.00 <sup>±0.10</sup>	1.00 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	0.80 <sup>±0.10</sup>	0.5 max.

■ Embossed Carrier Taping (4 mm Pitch)

● Rectangular Type (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T	φD <sub>1</sub>	
ERJ14□ ERJ□14	3225 (1210)	2.80 <sup>±0.20</sup>	3.50 <sup>±0.20</sup>	8.00 <sup>±0.30</sup>	3.50 <sup>±0.05</sup>	1.75 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	1.00 <sup>±0.10</sup>	1.00 <sup>+0.10</sup> <sub>0</sub>	
ERJ12□ ERJ□12	4532 (1812)	3.50 <sup>±0.20</sup>	4.80 <sup>±0.20</sup>	12.00 <sup>±0.30</sup>	5.50 <sup>±0.20</sup>							1.50 <sup>±0.10</sup>	1.60 <sup>±0.10</sup>
ERJ12Z ERJ12S ERJ□1D	5025 (2010)	2.80 <sup>±0.20</sup>	5.30 <sup>±0.20</sup>										
ERJB1 ERJC1	2550 (1020)	3.60 <sup>±0.20</sup>	6.90 <sup>±0.20</sup>										
ERJ1T□ ERJ□1T	6432 (2512)												
ERJL1W ERJM1W													
ERJA1	3264(1225)	3.50 <sup>±0.20</sup>	6.80 <sup>±0.20</sup>										

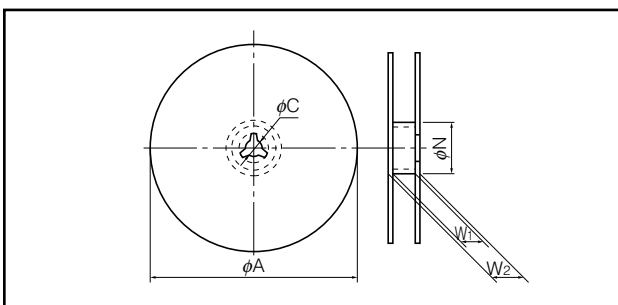
● Chip Resistor Array / Chip Resistor Networks (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T	φD <sub>1</sub>
EXBS8V	5022(2029)	2.80 <sup>±0.20</sup>	5.70 <sup>±0.20</sup>	12.00 <sup>±0.30</sup>	5.50 <sup>±0.20</sup>	1.75 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	2.00 <sup>±0.05</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	1.6 max.	1.5 min.
EXBE	4021(1608)	2.50 <sup>±0.20</sup>	4.40 <sup>±0.20</sup>								1.10 <sup>±0.20</sup>	
EXBA	6431(2512)	3.50 <sup>±0.20</sup>	6.80 <sup>±0.20</sup>									

● Fixed Metal (Oxide) Film Resistors (Unit : mm)

Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	T	φD <sub>1</sub>
ERG(X)1H	6.20 <sup>±0.20</sup>	13.70 <sup>±0.20</sup>	24.0 <sup>±0.30</sup>	11.50 <sup>±0.10</sup>	1.75 <sup>±0.10</sup>	8.00 <sup>±0.10</sup>	2.00 <sup>±0.10</sup>	4.00 <sup>±0.10</sup>	1.50 <sup>+0.10</sup> <sub>0</sub>	5.70 <sup>±0.10</sup>	1.5 min.
ERG(X)2H	7.00 <sup>±0.20</sup>	16.20 <sup>±0.20</sup>				12.00 <sup>±0.10</sup>				6.40 <sup>±0.10</sup>	

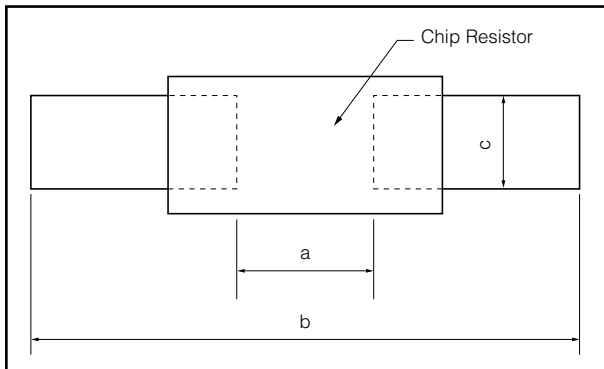
■ Taping Reel (Unit : mm)



Tape Width(W)	φA	φN	φC	W <sub>1</sub>	W <sub>2</sub>
4mm Width	180.0 <sup>±3.0</sup>	60.0 <sup>+1.0</sup> <sub>0</sub>	13.0 <sup>±0.2</sup>	4.5 <sup>±0.5</sup>	7.0 <sup>±0.5</sup>
8mm Width	180.0 <sup>-1.5</sup> <sub>0</sub>			9.0 <sup>+1.0</sup> <sub>0</sub>	11.4 <sup>±1.0</sup>
12mm Width				13.0 <sup>+1.0</sup> <sub>0</sub>	15.4 <sup>±1.0</sup>
24mm Width	380.0 <sup>±2.0</sup>	80.0 <sup>±1.0</sup>		25.4 <sup>±1.0</sup>	29.4 <sup>±1.0</sup>

### Recommended Land Pattern

● An example of a land pattern for the Rectangular Type is shown below.



Size mm/inch	Dimensions (mm)		
	a	b	c
0402/01005	0.15 to 0.20	0.5 to 0.7	0.20 to 0.25
0603/0201	0.3 to 0.4	0.8 to 0.9	0.25 to 0.35
1005/0402	0.5 to 0.6	1.4 to 1.6	0.4 to 0.6
1608/0603	0.7 to 0.9	2.0 to 2.2	0.8 to 1.0
2012/0805	1.0 to 1.4	3.2 to 3.8	0.9 to 1.4
3216/1206	2.0 to 2.4	4.4 to 5.0	1.2 to 1.8
3225/1210	2.0 to 2.4	4.4 to 5.0	1.8 to 2.8
4532/1812	3.3 to 3.7	5.7 to 6.5	2.3 to 3.5
5025/2010	3.6 to 4.0	6.2 to 7.0	1.8 to 2.8
6432/2512	5.0 to 5.4	7.6 to 8.6	2.3 to 3.5
6432/2512*	3.6 to 4.0	7.6 to 8.6	2.3 to 3.5

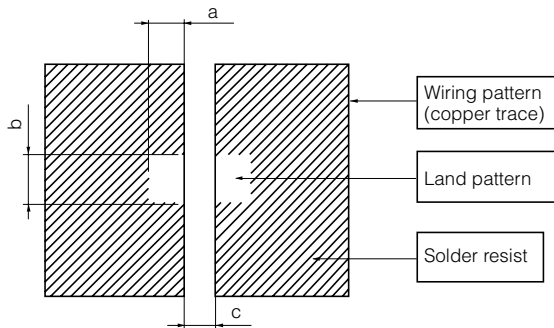
High power (double-sided resistive elements structure) type

Type	Size mm/inch	Dimensions (mm)		
		a	b	c
ERJ2BW	1005/0402	0.52	1.4 to 1.6	0.4 to 0.6
ERJ3BW	1608/0603	0.5 to 0.8	2.5 to 2.7	0.9 to 1.1
ERJ6BW	2012/0805	0.9	3.2 to 3.8	1.1 to 1.4
ERJ8BW	3216/1206	1.2	4.4 to 5.0	1.3 to 1.8
ERJ8CW (10 to 16 mΩ)				
ERJ8CW (18 to 50 mΩ)	3216/1206	2.0 to 2.6	4.4 to 5.0	1.2 to 1.8

\* ERJL1W

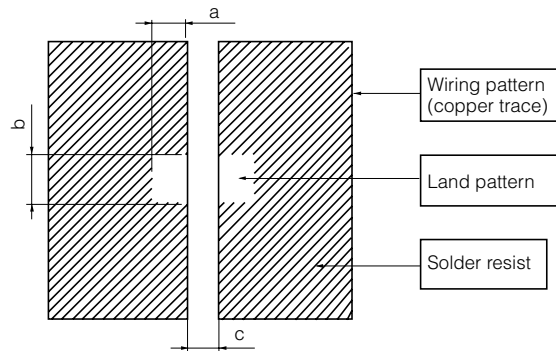
● An example of a land pattern for Low Resistance Value Chip Resistors is shown below.

ERJM03 (Size 1608/0603)



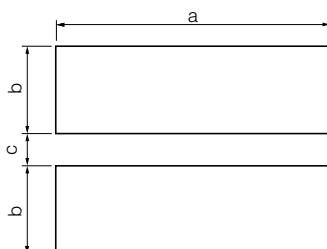
Type	Dimensions (mm)		
	a	b	c
ERJM03N	0.65	0.8	0.7

ERJM1W (Size 6432/2512)



Type	Dimensions (mm)		
	a	b	c
ERJM1WS	2.1	3.4	4.2
ERJM1WT	3.1	3.4	2.2

● An example of a land pattern for High Power Chip Resistors / Wide Terminal Type is shown below.



Type	Dimensions (mm)		
	a	b	c
ERJA1	6.4	1.70	0.60
ERJB1 ERJC1 <sup>(1)</sup>	5.0	1.30	0.75
ERJB2	3.2	0.95	0.70
ERJB3	2.0	0.80	0.60

(1) Anti-Sulfurated High Power Chip Resistors / Wide Terminal Type